

**Heating, Ventilation & Air Conditioning**  
**Industrial Cooling - Refrigeration**  
**Industrial Pumping & Ventilation**



*Powering Business Worldwide*

# Go variable motor speed Reduce energy consumption Increase your profit

Eaton next-generation motor control components will make your application meet your market's demands of today.

Reliability and efficiency for a profitable and sustainable business to energize your business in residential & industrial air conditioning, heat pumps & thermal power stations, water & wastewater treatment and industrial mediums handling.

## 75 % cost savings

Variable motor speed meets HVAC, industrial cooling and industrial pumping & ventilation - variable frequency drives will make your application reduce the CO2 emission and energy consumption significant and make your customers benefit from up to 75 % of cost savings and grow your business herewith.

Learn more about energy efficiency and cost savings with the Eaton Energy Savings Estimator tool.

Download at  
[www.eaton.com/energysavingsestimator](http://www.eaton.com/energysavingsestimator)



# EATON

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## Energy Savings Estimator

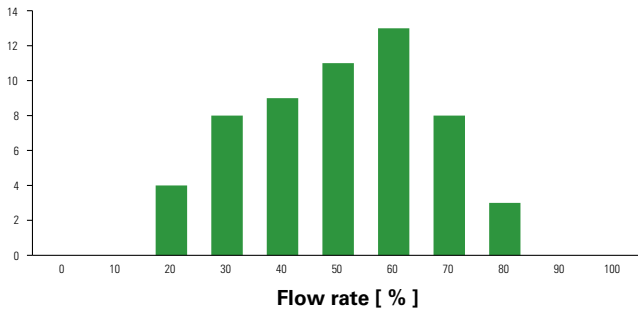


for Fan and Pump Applications

## Minor investments - High earnings

A typical general purpose application normally does not work at full load as the demands of the consuming residential infrastructure or industrial application do vary over a certain period e.g. a working day. Main energy savings to be achieved are from 20 % to 80 % of capacity e.g. flow.

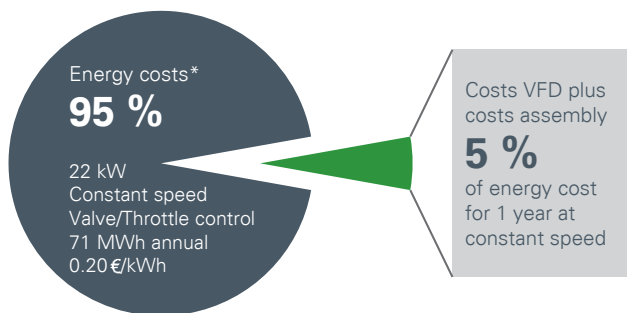
MWh savings



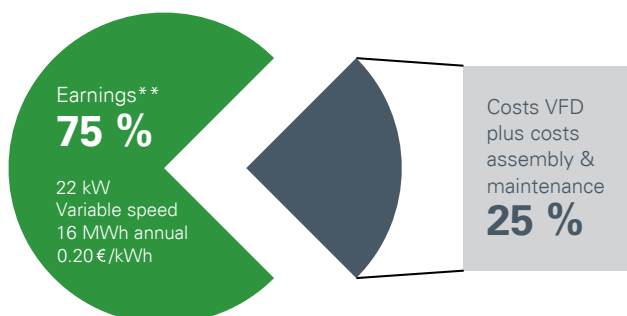
## Significant cost savings

A typical 22 kW fan application for a commercial building would make your customer need to invest nearly 1,000 EUR but save around 11,000 EUR annually by 55 MWh of energy savings. The pay back time including the assembly costs in this case would be 1 month only, which is the ensign of changing from constant to variable motor speed.

Typically you will need to do investments when changing your application from constant to variable motor speed. Those investments for assembly plus costs for a variable frequency drive are only 5 % of the full year energy costs for an application at constant speed and variable demand.



\* 1 year



\*\* 10 years life time cycle

# Eaton next generation drives for most demanding requirements

## PowerXL DG1 – the all-rounder

The Eaton DG1 general-purpose drives are part of the Eaton PowerXL™ next generation series of drives specifically engineered for today's more demanding residential air conditioning, industrial cooling and industrial fan & pump applications. With an industry-leading energy efficiency algorithm, a high short-circuit current rating and a robust design, the DG1 offers customers environmental sustainability plus increased efficiency and reliability for their application.

Features as e.g. auto change function, damper start, pipe fill function, dry run or belt demolition detection and Fire Mode do emphasize this drive series as a premium product for usage in the market segments HVAC, water/wastewater and industrial mediums handling.



## Benefits

- ✓ 60 % cost savings & ErP conformity
  - ✓ Extra 2-10 % cost savings
  - ✓ Extra cost savings by:
    - lower labor costs
    - less components
    - less queries
    - less down times
- High energy efficiency by variable motor speed
- Best in class active energy control algorithm
- Easy commissioning and assembly
- Integrated applications (dry run, pipe fill ..)
- Robust and reliable design
- IoT capability (On board: Modbus RTU & TCP, EtherNet/IP & BacNet MS/TP. Optional: PROFINET, PROFIdrive, PROFIBUS, CANopen, DeviceNet, SmartWire-DT)

## Additional features

- Dual rating (CT, VT)
- Integrated applications, e.g.:
  - Multi-pump and fan control
  - Multi-PID or multi-purpose
  - Fire Mode
- Conformal coating, high rated enclosure type
- Cabinet solutions / enclosed drives (2018)
  - Standard
  - Customized
- 5 % DC link choke
- EMC filter and brake chopper standard



# Eaton drives for HVAC and pump applications

## The PowerXL DM1 – compact & flexible

Eaton's DM1 variable frequency drives combine maximum functionality with a small footprint. The devices can be used wherever space is limited, but where the functionality of a standard universal drive is nevertheless required. This includes pump and HVAC applications as well as the control of conventional motors such as asynchronous or PM motors. Single-phase (115 / 230 V) and three-phase versions (400 / 600 V) are available, covering the power range up to 22 kW. The DM1 Pro version comes with safe torque off and extensive communication protocols as standard.



## Benefits & Features

The all new Eaton DM1, serving similar benefits on savings as the Eaton DG1 series, does come along in 2 versions (Standard & Pro) with multiple features:

- STO - SIL2, PLd, Cat.3 (DM1 Pro)
- Integrated web server (DM1 Pro)
- Bluetooth on board
- Short-circuit protection without additional upstream devices
- Modbus RTU on board
- Modbus TCP, Bacnet MS/TP and IP, Ethernet IP on board (DM1 Pro)
- PROFINET, PROFIdrive, PROFIBUS, CANopen, DeviceNet and SmartWire-DT optional (DM1 Pro)
- Ambient temperatures of up to 50 °C without derating
- High overload resistance: 150 % for 60 seconds, 200 % for 2 seconds, dual rating
- V/f control
- Sensorless vector control & PM control (DM1 Pro)
- 7 segment display with keypad (DM1 Pro)
- Multiple integrated applications for HVAC & pumping



For more information on the DM1 variable frequency drives visit:

[Eaton.com/dm1](http://Eaton.com/dm1)

# Eaton all new cold plate drive with minimal space requirements

## PowerXL DB1 – Compact & future proof in one

The Eaton DB1 cold plate drives are part of the Eaton PowerXL next generation series of drives specifically engineered for today's challenging mobile cooling and industrial fan & pump applications. With an industry leading footprint reduction, a robust design and it's future proof motor control algorithm to control state of the art IE4 motors as BLDC, SynchRel and PM motors the DB1 offers customers environmental sustainability plus perfect adaption for their mobile application.

Features as e.g. IE4 motor control or Fire Mode as well as push-in and cage clamp terminals do underline the DB1 approach to easily fit into mobile applications and the General Purpose segment.



## Benefits

### ✓ Cost savings

- Energy savings
- Lower labor costs
- Less investments

- Less queries

IE4 motor control

Easy commissioning and assembly

Cold plate design allows the small footprint with -10 to +60°C ambient temperature and simplifies decentral assembly & enclosure

Robust and reliable design

## Cold plate – what it's all about ?

The DB1 is a cold plate drive that works without any heat sink as standard drives do. But how does this work?

It is simply that all of the heat dissipation is done by the enclosure itself due to the DB1 back side cold plate direct mounted on the internal mounting plate of the enclosure. This principle is named passive cooling where the enclosure does work as the heat sink now.

## More Eaton components to cover the complete range of your requirements



### PowerXL DC1 – Powerful in damp room applications

For the less complex applications and e.g. outside cabinet usage the Eaton PowerXL DC1 series comes along with nearly twice the feature set as the DE1. Main differentiator is the energy saving IE4 motor control algorithm and the enclosure type IP66 for motor close assembly and significant cost savings on cables and cabinets. Also a standard feature here is the Fire Mode.

For more information on the DC1 compact drive visit [Eaton.com/dc1](http://Eaton.com/dc1)

### PowerXL DE1 – For beginners

As well providing Fire Mode but serving little complex and cost challenging applications in the general purpose sector Eaton does offer the PowerXL DE1 series for – best in class cost savings on assembly, commissioning and operation due to its easy-to-use features as e.g. Trip Free Design and easy screw driver set up. The philosophy here are moderate investments and appropriate features for the entry market.

For more information on the DE1 variable speed starter visit [Eaton.com/de1](http://Eaton.com/de1)



### DILMT and DILAT – Compactness new defined

The new contactor series DILMT and DILAT with its small footprint is dedicated to applications with limited space for installation. Especially mobile cooling and refrigeration applications as well as mobile heating aggregates do benefit from a cost optimized and 40 % space saving design. Over 1,000,000 operating cycles do underline our philosophy – moderate investments paired with reliability and cost efficiency for the entry market and applications with challenging installation space limits.

For more information on Eaton's contactors visit [Eaton.com/contactors](http://Eaton.com/contactors)



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For more information, visit [www.eaton.com](https://www.eaton.com).

Eaton addresses worldwide: [Eaton.com/contacts](https://www.eaton.com/contacts)



**Eaton**  
EMEA Headquarters  
Route de la Longeraie 7  
1110 Morges / Switzerland  
[Eaton.com](https://www.eaton.com)

**Electrical Sector**  
Eaton Industries GmbH  
Hein-Moeller-Str. 7-11  
53115 Bonn / Germany

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